

ABSTRACT

An architecture and method for performing dynamic route discovery and time slot reservation provisioning within optical-switched networks. The method employs extensions to the RSVP-TE signaling protocol, which uses various messages to reserve resources. Under a peer routing embodiment, routing trees and resource availability data are maintained by the edge nodes. A lightpath route is dynamically selected based on selection criteria applied to the routing tree data and the availability of resources along the lightpath. Link state information, including resource reservation data, is broadcast by the switching nodes to update the edge nodes of their resource availability. A resource reservation message is passed between nodes defined by an explicit route contained in the message, and resource availability is confirmed for the entire lightpath prior to confirming the resource reservations.